

## CLAIMS

**1** - Method for detecting surface defects (2), on a neck ring (3), of a transparent or translucent container (4) having an axis of revolution (X),

characterized in that it comprises the following steps:

- 5       – illuminating, by means of an incident light beam (6), a section (s) of the surface (2) of the neck ring (3) of the container (4), along a determined incident direction ( $D_i$ ),
- arranging a linear measuring sensor (10), along a determined direction of reflection ( $D_r$ ), to collect the light beam reflected by the surface defect on the neck ring, the angle ( $\alpha$ ) between the incident direction ( $D_i$ ) and reflection direction ( $D_r$ ) lying between 15 and 45°, preferably in the order of 30°, one of these directions being parallel to the axis of revolution (X) of the container,
- 10       – ensuring rotation of the container (4) about the axis of revolution (X) through at least one rotation,
- 15       – and processing the light beam received by the linear sensor (10), so as to create an image (I) and analyse the image to identify the presence of a surface defect corresponding to a bright area (b).

**2** - Method as in claim 1, characterized in that it consists of illuminating, by means of an incident light beam (6), a radial section (s) of surface (2) of the container's neck ring.

**3** - Method as in claim 2, characterized in that one of the reflection ( $D_r$ ) or incident ( $D_i$ ) directions is parallel to the axis of revolution (X) of the container while the other direction extends along a plane (P) perpendicular to the radial plane (R) of the container and parallel to the axis of revolution (X).

**4** - Method as in claim 1, characterized in that it consists of analysing the image (I) by conducting an analysis of the form characteristics of the bright areas (b) in order to identify the presence of a surface defect.

**5** - Method as in any of claims 1 to 4, characterized in that it consists of illuminating, by means of an incident light beam (6), a radial section (s) of the surface (2) of the container's neck ring (4) along a determined incident direction parallel to the axis of revolution (X) of the container, and of arranging a linear

measuring sensor (10) parallel to the radial plane (R) and oriented in a direction extending along a plane (P) perpendicular to the radial plane and parallel to the axis of revolution.

6 - Method as in claim 5, characterized in that it consists of arranging a second  
5 linear sensor symmetrically to the first linear measuring sensor (10) with respect to the radial plane (R).

7 - Device for detecting surface defects (2) on the neck ring (3) of a transparent or translucent container (4) having an axis of revolution (X), characterized in that it comprises:

- 10     – a light source (5) adapted to illuminate by means of an incident light beam (6), a section (s) of the neck ring surface of the container, along a determined incident direction ( $D_i$ ),
- at least one linear measuring sensor (10) to measure light beams arranged to collect the light beam reflected by the surface defect on the neck ring, the  
15     angle ( $\alpha$ ) between the incident ( $D_i$ ) and reflection ( $D_r$ ) directions lying between 15 and 45°, preferably in the order of 30°, one of ten directions being parallel to the axis of revolution (X) of the container,
- means (15) for ensuring rotation of the container about the axis of revolution through at least one rotation,
- 20     – and a unit (16) for analysing and processing the light beams received by the linear sensor, adapted to create an image (I) and to analyse the image so as to identify the presence of a surface defect corresponding to a bright area (b).

8 - Device as in claim 7, characterized in that the light source (5), by means of an incident light beam (6), illuminates a radial section (s) of the surface (2) of the  
25 container's neck ring.

9 - Device as in claim 8, characterized in that the light source (5) and the linear measuring sensor (10) are positioned so that either one of the reflection ( $D_r$ ) or incident ( $D_i$ ) directions is parallel to the axis of revolution (X) of the container, while the other direction extends along a plane (P) perpendicular to the radial plane (R) of  
30 the container and parallel to the axis of revolution (X).

**10** - Device as in claim 7, characterized in that the analysis and processing unit **(16)** comprises means for analysing the form characteristics of the bright areas **(b)** in order to identify the presence of a surface defect.

**11** - Device as in any of claims 7 to 10, characterized in that the light source **(5)**  
5 by means of an incident light beam **(6)**, illuminates a radial section **(s)** of the surface **(2)** of the neck ring of the container along a determined incident direction **(D<sub>i</sub>)** parallel to the axis of revolution **(X)** of the container, and in that the linear measuring sensor **(10)** is positioned parallel to the radial plane **(R)**, being oriented in a direction extending along a plane **(P)** perpendicular to the radial plane and parallel to the axis  
10 of revolution **(X)**.

**12** - Device as in claim 11, characterized in that it comprises a second linear measuring sensor **(10)** positioned symmetrically to the first linear measuring sensor with respect to the radial plane **(R)**.